

IN THE CLAIMS

1 1. [Currently Amended-Figure 3 embodiment] ~~An integrated circuit~~ A device
2 ~~structure~~ comprising:

3 a plastic or glass or plastic laminated to glass substrate;

4 a layer of substrate insulation comprised of silicon dioxide or silicon nitride
5 formed on said substrate using low-temperature, thin-film integrated circuit
6 processing techniques performed using temperatures and materials which will
7 not damage said substrate, said layer formed so as to have having a thickness,
8 given the Young's Modulus and type of material of said layer of insulation and the
9 Young's Modulus, thickness and type of material of said substrate, such that little
10 or no differential strain between said ~~the~~ substrate and said layer of substrate
11 insulation occurs at any temperature in the normal operating temperature range of
12 said device; integrated circuit;

13 an antenna conductor which is bonded onto, integrated onto or printed
14 onto said layer of substrate insulation ~~substrate~~ and having two conductive pads
15 or other conductive terminal areas where electrical connection to said antenna is
16 capable of being made;

17 an antenna insulation layer formed over said antenna conductor using
18 low-temperature, thin-film integrated circuit fabrication techniques using
19 temperatures and materials which will not damage previously formed structures
20 of said device, said antenna insulation layer formed so as to have vias or contact
21 holes over said conductive terminal areas of said antenna conductor;

22 a layer of silicon deposited on said antenna insulation layer using thin-film,
23 low-temperature integrated circuit processing techniques using temperatures

and materials which will not damage previously formed structures of said device;

an integrated circuit comprising an RFID tag or smart card transceiver and
processor and memory integrated circuit integrated on said substrate in said layer
of silicon using low-temperature, thin-film integrated circuit processing techniques
carried out at temperatures and using materials which will not damage previously
formed structures of said device and formed so as to have RF input/output
terminals which are electrically coupled to said conductive terminal areas of said
antenna.

2. [Currently Amended - Figure 1 embodiment] A An integrated circuit device
structure comprising:

a plastic or glass or plastic laminated to glass substrate;
a layer of substrate insulation comprised of silicon dioxide or silicon
nitride or a combination of silicon dioxide and silicon nitride formed on said
substrate using low-temperature, thin-film integrated circuit processing
techniques performed using temperatures and materials which will not damage
said substrate, said layer of substrate insulation formed so as to have having a
thickness, given the Young's Modulus and type of material of said substrate
insulation layer o and the Young's Modulus, thickness and type of material of said
substrate, such that little or no differential strain between said the substrate and
said layer of substrate insulation occurs at any temperature in the normal
operating temperature range of said device integrated circuit;
a layer of silicon deposited on said layer of substrate insulation using thin-
film, low-temperature integrated circuit processing techniques using
temperatures and materials which will not damage previously formed structures

of said device;

an integrated circuit comprising an RFID tag or smart card transceiver
having antenna contacts and a processor and a memory integrated circuit
integrated into said layer of silicon using low-temperature, thin-film integrated
circuit fabrication techniques performed using temperatures and materials which
will not damage previously formed structures on said device, on said substrate
on top of said insulation layer of silicon dioxide or silicon nitride said transceiver
portion of said integrated circuit formed so as to have RF input/output terminals,
and having a layer of insulating material formed over said integrated circuit;

an integrated circuit insulating layer formed over said integrated circuit
using low-temperature, thin-film integrated circuit fabrication techniques using
temperatures and materials which will not damage previously formed structures
of said device, and having contact holes formed therethrough to allow electrical
connection to said RF input/output terminals of said transceiver;

an antenna conductor which is bonded onto, integrated onto or printed
 onto said integrated circuit insulating layer covering said transceiver integrated
circuit so as to make electrical connection with said RF input/output terminals of
said transceiver. RF input/output terminals.

3. [Currently Amended] ~~An integrated circuit~~ A device structure comprising:

a first plastic or glass or plastic laminated to glass substrate;

a substrate insulation layer of silicon dioxide or silicon nitride formed on
said substrate using integrated circuit processing techniques having
temperatures and materials which will not damage said substrate, having said
substrate insulation layer formed so as to have a thickness selected given the

7 Young's modulus of the material of said substrate insulation layer such that little
8 or no differential strain between the substrate and said substrate insulation layer
9 occurs at any temperature in the normal operating temperature range of said
10 device; integrated circuit;

11 an antenna conductor which is bonded onto, integrated onto or printed
12 onto said substrate insulation layer and having two conductive pads or other
13 conductive terminal areas where electrical connection to said antenna is capable
14 of being made;

15 an RFID tag or smart card transceiver integrated circuit integrated using
16 semiconductor processing techniques on a second plastic or glass substrate
17 using flat panel display manufacturing equipment, said integrated circuit being cut
18 from said second plastic or glass substrate and bonded or otherwise attached to
19 said first plastic substrate and having RF input/output terminals; and

20 wires connected between said RF input/output terminals of said
21 integrated circuit and said terminal areas of said antenna.

Please add a new claim 4 as follows:

1 4. A memory device comprising:

2 a plastic or glass or plastic laminated to glass substrate;

3 a layer of substrate insulation comprised of silicon dioxide or silicon nitride
4 formed on said substrate using low-temperature, thin-film integrated circuit
5 processing techniques performed using temperatures and materials which will
6 not damage said substrate, said layer formed so as to have a thickness, given the
7 Young's Modulus and type of material of said layer of insulation and the Young's
8 Modulus, thickness and type of material of said substrate, such that little or no
9 differential strain between said substrate and said layer of substrate insulation

10 occurs at any temperature in the normal operating temperature range of said
11 device;

12 a layer of silicon deposited on said antenna insulation layer using thin-film,
13 low-temperature integrated circuit processing techniques using temperatures
14 and materials which will not damage previously formed structures of said device;

15 an EEPROM memory having a source, drain and channel region integrated
16 in said layer of silicon and having a gate insulation layer formed over said channel
17 region which is thin enough to allow tunnelling when programming voltages are
18 applied, and having a gate, and having an intergate insulation layer formed over
19 said gate, and having a control gate formed over said intergate insulation layer, all
20 said structures forming said EEPROM memory formed using low-temperature,
21 thin-film integrated circuit processing techniques carried out at temperatures and
22 using materials which will not damage previously formed structures of said
23 device;

24 an EEPROM insulation layer formed over said EEPROM memory using low-
25 temperature, thin-film integrated circuit processing techniques carried out at
26 temperatures and using materials which will not damage previously formed
27 structures of said device; said insulation layer formed so as to have contact
28 holes therein to allow electrical contact to said control gate and said source and
29 drain regions of said EEPROM memory;

30 a contact metallization layer formed over said EEPROM insulation layer so
31 as to make electrical contact with said control gate and said source and drain
32 regions of said EEPROM memory.